

Claims

- [c1] 1. A scribe line structure on a wafer having a low dielectric constant material layer thereon, wherein a plurality of lump patterns is set up in the low dielectric constant material layer within the scribe line such that the lump patterns pave the scribe line area almost completely.
- [c2] 2. The scribe line structure of claim 1, wherein each lump pattern has an identical shape.
- [c3] 3. The scribe line structure of claim 2, wherein the shape of each lump pattern is selected from the group at least consisting of a square, a rectangle, a triangle, a rhombus, a circle, a pentagon, a hexagon and an octagon.
- [c4] 4. The scribe line structure of claim 1, wherein the lump patterns are arranged to form a cyclically repeating array.
- [c5] 5. The scribe line structure of claim 4, wherein the lump patterns are arranged to form a cyclically staggered array.
- [c6] 6. The scribe line structure of claim 1, wherein each lump pattern comprises at least one of a metal layer and

a metal plug.

- [c7] 7. The scribe line structure of claim 6, wherein each lump pattern comprises at least one of a metal layer and a metal plug connected to each other.
- [c8] 8. The scribe line structure of claim 7, wherein the scribe line has multiple sheets of lump patterns such that the metal layer/metal plug pairs in each sheet are aligned and stacked over each other directly.
- [c9] 9. The scribe line structure of claim 7, wherein the scribe line has multiple sheets of lump patterns such that each sheet with metal layer/metal plug pairs therein are separated from a nearby sheet by an intermediate layer.
- [c10] 10. A scribe line structure on a wafer having a low dielectric constant material layer thereon, wherein at least a wafer processing or testing pattern is set up within the scribe line and a plurality of lump patterns is set up in the low dielectric constant material layer within the scribe line such that the lump patterns pave the scribe line area outside the processing or testing pattern almost completely.
- [c11] 11. The scribe line structure of claim 10, wherein the wafer processing or testing pattern is surrounded by the lump patterns.

- [c12] 12. The scribe line structure of claim 10, wherein the wafer processing or testing pattern is adjacent to one of the boundaries of the scribe line so that no lump pattern is set up between the processing or testing pattern and its adjacent scribe line boundary.
- [c13] 13. The scribe line structure of claim 10, wherein each lump pattern has an identical shape.
- [c14] 14. The scribe line structure of claim 13, wherein the shape of each lump pattern is selected from the group at least consisting of a square, a rectangle, a triangle, a rhombus, a circle, a pentagon, a hexagon and an octagon.
- [c15] 15. The scribe line structure of claim 10, wherein the lump patterns is arranged to form a cyclically repeating array.
- [c16] 16. The scribe line structure of claim 15, wherein the lump patterns is arranged to form a cyclically staggered array.
- [c17] 17. The scribe line structure of claim 10, wherein each lump pattern comprises at least one of a metal layer and a metal plug.
- [c18] 18. The scribe line structure of claim 17, wherein each

lump pattern comprises at least one of a metal layer and a metal plug connected to each other.

- [c19] 19. The scribe line structure of claim 18, wherein the scribe line has multiple sheets of lump patterns such that the metal layer/metal plug pairs in each sheet are aligned and stacked over each other directly.
- [c20] 20. The scribe line structure of claim 18, wherein the scribe line has multiple sheets of lump patterns such that each sheet with metal layer/metal plug pairs therein is separated from a nearby sheet by an intermediate layer.
- [c21] 21. The scribe line structure of claim 10, wherein the wafer processing or testing patterns are selected from the group consisting of alignment marks, process-monitoring/measuring patterns, electrical testing patterns and product identification marks.